Aberdeen City Council
Carbon Management Programme

Carbon Management Plan (CMP)
2010 - 2015

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Foreword from Sue Bruce, Chief Executive

Aberdeen City Council has a strong track record of tackling carbon emissions. The council was one of the first to sign up in 2004 to the Carbon Trust Local Authority Carbon Management Programme (LACMP), which aims to reduce emissions from our buildings, vehicles, street lighting and landfill sites.

We committed ourselves at that time to a carbon reduction target of 10% by 2010, and a further 15% by 2015. We surpassed that four years ago in 2006, when we achieved a 31% CO_2 reduction. We now want to build on our impressive achievements so far and strive even harder to do all we can to combat climate change.

Last year the council signed up to the LACMP programme again, setting an ambitious target of further cuts of 23% by 2015 and 42% by 2020.

A lot of good work has already been carried out in Aberdeen including:

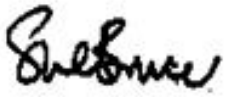
- the installation and expansion of combined heat and power plants with several multi-storey blocks and eight public buildings linked into the schemes;
- signing a contract to ensure all our electricity comes from renewable sources;
- cutting the number of ICT servers from 82 to 39;
- the delivery of new schools through the 3Rs public-private partnership project, replacing inefficient oil-heated buildings.

A great deal more work will be carried out as detailed in this Carbon Management Plan to further shrink Aberdeen City Council's carbon footprint.

Cutting carbon emissions often has the added benefit of also cutting costs, something every UK council is striving to do.

Aberdeen City Council has already this year been officially certified with the Carbon Trust Standard in recognition of its efforts to combat climate change. We are spearheading Scotland's climate change efforts by taking direct and targeted action ourselves rather than paying others to off-set our emissions.

I look forward to seeing the hard work continue and I am confident that Aberdeen City Council will continue to lead the way in tackling carbon emissions and meet or even surpass the ambitious targets we have set.



Sue Bruce
Chief Executive, Aberdeen City Council

Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for local authorities - it's all about getting your own house in order and leading by example. The UK government has identified the public sector as key to delivering carbon reduction across the UK inline with its Kyoto commitments and the Public Sector Carbon Management programme is designed in response to this. It assists organisations in saving money on energy and putting it to good use in other areas, whilst making a positive contribution to the environment by lowering their carbon emissions.

Aberdeen City Council was selected in 2008, amidst strong competition, to take part in this ambitious programme. Aberdeen City Council partnered with the Carbon Trust on this programme in order to realise vast carbon and cost savings. This Carbon Management Plan commits the organisation to a target of reducing CO_2 by 23% by 2015 and by 42% by 2020 and underpins potential financial savings to the organisation of around £2 million.

There are those that can and those that do. Public sector organisations can contribute significantly to reducing CO_2 emissions. The Carbon Trust is very proud to support Aberdeen City Council in their ongoing implementation of carbon management.

Richard Rugg
Head of Public Sector, Carbon Trust

Executive Summary

Aberdeen City Council was the first local authority in Scotland to develop a Climate Change Policy and Action plan. It was developed in 2002 and since then the Council have demonstrated a continued commitment to tackling climate change. This is the second time the Council has undertaken the Carbon Management Programme and this is timely. The forthcoming Carbon Reduction Commitment (CRC) presents a significant opportunity to drive carbon reduction to the heart of all Council activities.

We are committed to delivering a 23% CO_2 emissions reduction by 2015 (using a 2008/09 baseline). To meet this aspirational target we have developed a range of projects some short term and low cost, others requiring significant capital investment. However, we actively explore external funding opportunities to support the delivery of our projects.

The Carbon Management Plan has the potential to save the Council over **£2 million** and 27,262 tonnes of CO_2 over the next 5 years assuming energy prices remain at the current price.

Under the CRC this could save the Council a further £113,563 (based on the initial set price of £12 per tonne CO_2. This set price is due to increase in the 4th year of the CRC).

At the time of writing approximately 98% of projects have funding allocated to them from both internal and external sources. This equates to over £213 million. However £3.7 million is still required.

The top three projects which will deliver the greatest carbon savings (the “big hitters”) are:

- Methane Capture from Hill of Tramaud Landfill Site;
- A Programme of Staff Awareness Raising and Training; and
- Building Rationalisation – decanting from Summerhill and St Nicholas House and moving to Marischal College.

In total these three projects are expected to save over 9,000 tonnes CO_2 constituting 1/3 of the Council’s total carbon reduction target (23% by 2015).

Introduction

Aberdeen City Council has for some time recognised the importance of tackling climate change. This Council was one of the first authorities in the UK to develop a policy for tackling climate and in 2004 participated in the Local Authority Carbon Management Programme. As a result the Council achieved a CO_2 reduction of 31% by 2006 surpassing the set target of a 10% reduction by 2010.

Since taking part in the programme, the Council has made significant progress in reducing its carbon emissions. This has been achieved by developing and using a sustainable procurement policy, installing docu-centres in offices, purchasing green electricity for buildings and street lighting, purchasing low emission pool vehicles, re-evaluating and downsizing fleet, introducing sustainable buildings standards for Council owned properties and installing renewable technologies in our school estate. One of the main successes has been the development of 3 combined heat and power (CHP) district heating schemes providing low cost, low carbon heating and hot water to 14 multi storey blocks and 8 public buildings. These schemes form the 'backbone' of the Council's Decentralised Energy Programme. Carbon dioxide emissions from these buildings have reduced by 45% and fuel costs to the tenants have been decreased by 50%. There are currently plans to extend the schemes to include further multi storey tower blocks in the area.

As demonstrated, the Council is committed to reducing its carbon footprint therefore in May 2009 signed up to once again undertake the Carbon Management Programme. The programme will set tough carbon reduction targets for the Council over the next 5 years and has the benefit of ensuring the Council concentrate efforts on the areas of biggest financial and CO_2 reduction gains and are fit for the variety of new legislative requirement to address carbon management.

The Carbon Management Plan (CMP) has been developed by the Carbon Management Project Team which is a cross service Officer group within the Council. This document sets out key activities and projects that will enable the Council to reduce carbon emissions and meet our ambitious targets. The CMP is designed to be a working document and it is clear that the baseline and project plan will need to be reviewed and updated on an ongoing basis to ensure continued commitment and emissions reduction.

Carbon Management Strategy

1.1 Context and drivers for Carbon Management

The UK Government has placed an emphasis on local authorities setting a leading example on Climate Change. Action by local authorities will be critical to achieving the Government's climate change objectives, such as the long term goal to reduce CO_2 emissions by 80% by 2050 as set out in the Climate Change (Scotland) Act 2009 and the UK Climate Change Act 2008.

This has created a number of external drivers for local authorities such as:

- **Energy Performance Certificates**: Since 4 January 2009 there is a legal requirement for all public sector buildings where the public has access, with a total useful floor area of over 1,000m^2, to display an Energy Performance Certificate (EPC) in a prominent place, clearly visible to the public. This shows the building's energy efficiency rating on a scale from A – G, much like the rating system of electrical appliances.

- **Carbon Reduction Commitment**: Is a mandatory "cap & trade" emissions trading scheme for organisations whose total electricity consumption is greater than 6,000MWh or approximately £500k. If an organisation falls within the CRC scheme all electricity and fuel emissions are covered except emissions from domestic buildings and street lighting. From 2010 poorly performing Local Authorities will be financially penalised depending on their position in a CRC league table.

- **Rising Energy Prices**: The Council has experienced an increase of around **45%** in gas prices since 2004. In 2008/09 Aberdeen City Council spent around £9 million on energy (electricity, gas and heating oil) in non-domestic properties and over £2 million in domestic properties. This is only set to rise in future as demand for fossil fuel surpasses supply.

The Council has two key roles to play in carbon management:-

1. As a community leader by raising awareness and encouraging action across communities, and
2. As a major organisation and consumer of resources itself.

The Council is a large employer with approximately 11,000 employees. As a community leader the Council will lead by example, setting the standard for other local organisations to follow. To help achieve this goal Aberdeen City Council has developed several strategic tools which include:

- **Environmental Management Policy** statement endorsed by the Chief Executive which commits to minimise pollution, reduce emissions from our operations; manage waste sustainably and reduce energy consumption;

- **Energy Strategy** (2000) sits within the overarching Environment Strategy and aims to develop an Energy Policy for Aberdeen based on increased energy efficiency whilst addressing the following issues: Climate Change, Sustainable Development, National Policy and Quality service, efficiency and minimum cost;

- **Decentralised Energy Programme** (2008) commits to the installation of a decentralised energy system to all new build Council properties and replacement of heating and hot water systems in existing Council owned buildings as the normal default position as well as adopting an annual target of a 2.5% reduction in fuel purchased on the bulk contracts for properties owned by this Council to apply over the next 10 years;

- **Council Travel Plan** (2006) sits within the Local Transport Strategy and aims to reduce the environmental impacts of Council travel and transport. This includes travel for commuting and business by employees and Councillors, in its service delivery and associated activities;

- **Corporate Property Asset Management Plan (Non-Housing)** (2009) introduced to ensure the Council's property assets deliver what is required for Aberdeen and that use and management of assets is aligned to strategic objectives and priorities;

- **Sustainable Building Standards for Council Owned Buildings** (2008) introduced to ensure any new builds or major refurbishment carried out by the Council meet sustainable building criteria;

- **Sustainable Procurement Policy and Guidelines** (2002) designed to address the full range of concerns relating to the socio-economic and environmental impacts of goods and services purchased by the Council (update underway);

- **Sustainable Printing Policy** (2006) developed to ensure best printing practice in the council, to reduce paper consumption, save energy, maximise the use of multifunction document centres, reduce the number of printers in office areas and minimise spend on printers, printer maintenance and consumables (due for update 2009).

1.2 Our low carbon vision

The Council's current Administration Policy Statement 2007-2011, "Vibrant, Dynamic and Forward Looking" aims to minimise the impact of council activities on the environment including an aspirational target of being carbon neutral overall by 2020 and a commitment that all new council developments will be carbon neutral. However it is recognised that to achieve this aim within the timescale, significant investment in renewable energy technologies is required.

1.3 Targets and objectives

The main aim of undertaking this project is to identify an accurate, up to date picture of the Council's carbon emissions and from that develop a detailed Action Plan which will allow the Council to continually reduce its CO_2 emissions in forthcoming years.

In establishing a Carbon Management programme the Council has set the following targets and objectives:

- To reduce Aberdeen City Council's CO_2 emissions by 23% by 2015 and by 42% by 2020, using the financial year 2008/2009 as a baseline. Thereafter, reduce the Council's CO_2 emissions year on year in line with national legislation;
    - Particularly to achieve a 2% reduction in energy consumption in Council owned public buildings year on year;
- To encourage workforce involvement in the identification of opportunities and the implementation of actions;
- To continue to lead by example and encourage our partners and the community to make changes to reduce carbon emissions;
- To embed carbon management into Council procedures and ensure a consistently managed and updated Carbon Management Programme with continued management oversight from the Strategy Group.

We aim to reduce our carbon emissions by 23% (from 2008/09 levels) by 2015

Emissions Baseline and Projections

Aberdeen City Council's CMP will target emissions relative to energy use, waste sent to landfill and business travel, therefore having an accurate baseline is essential to enable stakeholders to set future targets as well as monitor and track progress.

From March to September 2009 work was carried out to establish the Council's carbon footprint 08/09 (an indication of the emissions that can be attributed to Council activities during financial year 08/09).

1.4 Scope

The following emissions sources have been included in the programme scope:

1. **Council fleet**; all fleet vehicles including pool cars;
2. **Council housing stock**; It has been decided to include 59 multi-storey blocks, consisting of approximately 4,500 flats into the programme scope. This is because these multi-storey blocks have the worst National Home Energy Rating (NHER) in the Council's housing stock across the City (on average NHER 3-4) therefore making them a priority area for improvement. A total of 14 are already linked into CHP schemes and more are planned to be connected in the near future;
3. **Energy consumption in council buildings**. This includes: community centres, day centres, libraries, offices, schools, sports facilities, storage facilities, swimming pools, toilets, theatres, youth centres;

   It has been decided to include buildings in arms length organisations such as Sport Aberdeen Ltd (29 sports facilities), Aberdeen Performing Arts (which consists of the theatre, music hall, lemon tree and box office) and the 3Rs Public Private Partnership project (delivering seven new primaries, two new secondary schools and one refurbished primary school). This is because although the Council do not have direct control over the carbon emissions of these buildings we do still own the properties, procure the fuel for these properties, and they will be included in the overall calculation of the Council's emissions under the CRC. If these buildings were omitted the baseline would not be fully representative of the Councils total emissions;
4. **Energy consumption of Information & Communication Technology (ICT);** energy consumption from ICT is not currently monitored separately; however it will be included in the overall building consumption;
5. **Energy consumption of street lighting:** including traffic signals and illuminated street signs (electricity);
6. **Staff business travel;** this includes essential car users and staff travel. At present this excludes commuting however we hope to include these figures in future versions;
7. **Waste (both corporate and domestic);** the emissions from collection will be considered in conjunction with the emissions from treatment and disposal. This is identified as a priority area as waste disposal was not accounted for in our last emission baseline in 2002/2003;
8. **Water**; consumption and disposal.

It has been decided to include 59 Council owned multi-storey blocks, consisting of approximately 4,500 flats into the programme scope. Excluded from the scope is the rest of the Council Housing stock. This is due to the amount of investment that has already been made in this sector. Over the last 10 years the Council has carried out energy efficiency improvement works on the 23,500 council houses in the City resulting in raising the average NHER (National Home Energy Rating) from 4.2 to 7.1 (as of 2007).

Aberdeen Sports Village has also been excluded from the scope as this is a joint project between University of Aberdeen, Aberdeen City Council and Sport Scotland.

At present internal waste forms part of the commercial waste stream within the council area. Due to the current collection system, internal, domestic and business waste may be collected on the same route making it difficult to identify the volume of internal waste generated by the Council. It is proposed that future baseline years will account for internal waste separately.

Aberdeen City Council intends to revise the scope of the Carbon Emissions Baseline in future years to incorporate other areas of the Council's operations, particularly to account for emissions from staff commuting.

Our annual CO_2 emissions from the above sources for 08/09 was calculated at 118 530 tonnes

1.5 Baseline

The Carbon emissions baseline has been calculated using a modified version of the Carbon Trust's Baseline Tool for Local Authorities using a variety of data sources from within Aberdeen City Council. The results of the baseline are shown in Figure 1. Council buildings are responsible for almost 50% of our total emissions, 18% from our school estate alone. Figure 2 shows building emissions broken down by building type, and again highlights the large contribution from schools, approximately 40%.

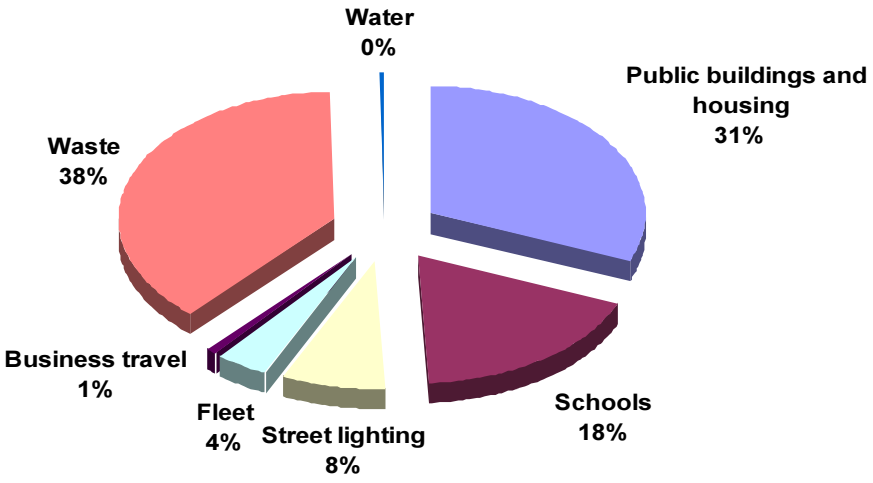


Figure 1: Aberdeen City Council summary of emissions for baseline year (2008/09 financial year)

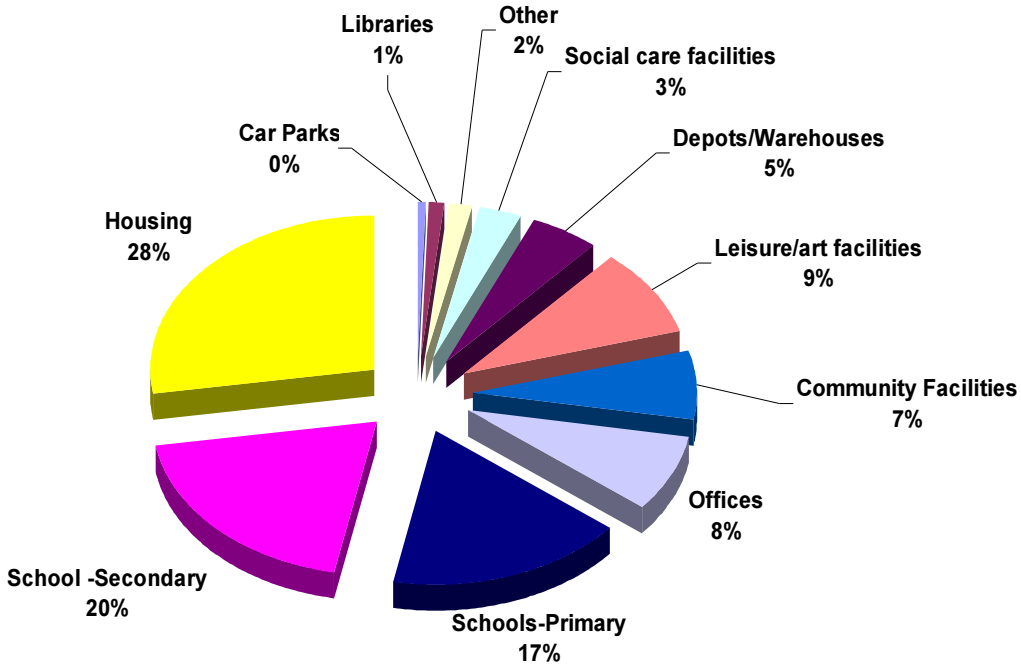


Figure 2: Aberdeen City Council 2008/09 CO_2 emissions from buildings, categorised by building type

1.6 Projections and Value at Stake

Using 2008/09 as the baseline year it is possible to calculate the rising energy and fuel costs over the next 5 years if the Council continues to operate as it currently does. This is known as the Business as Usual (BAU) scenario as shown in Figure 3. However, the blue line shows the financial reduction that can be achieved if the proposed carbon management projects are fully implemented.

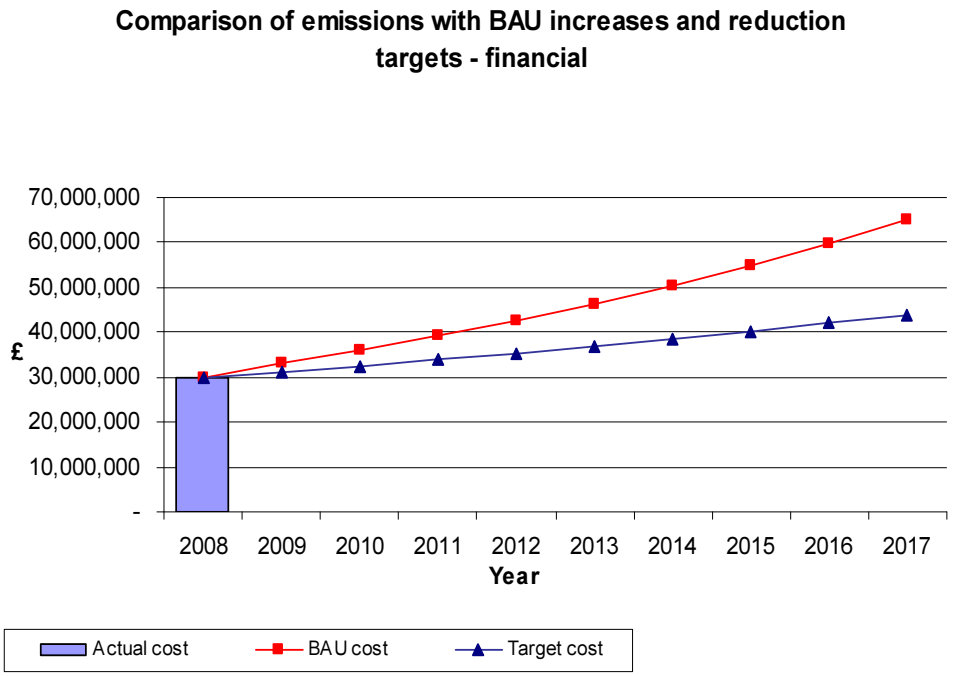


Figure 3: Financial comparison of Business as usual (BAU) and Target.

Additionally, figure 4 shows the amount of CO_2 produced from Council activities over the next 5 years if the proposed projects are not implemented (known as the Business as Usual (BAU) scenario). This scenario has been modelled using the Carbon Trust Baseline Tool and assumes an annual increase of 0.7% (due to the increased use of ICT, air conditioning etc). For Aberdeen City Council it is projected that CO_2 emissions would rise to 124,462 tonnes CO_2 by 2015. This means by 2015 the Council will be consuming more fuel and energy than at present resulting in more expensive utility bills. The blue line shows a reduced emissions scenario i.e. an estimate of the carbon savings that could be realised if we meet our set target of 23% by 2015.

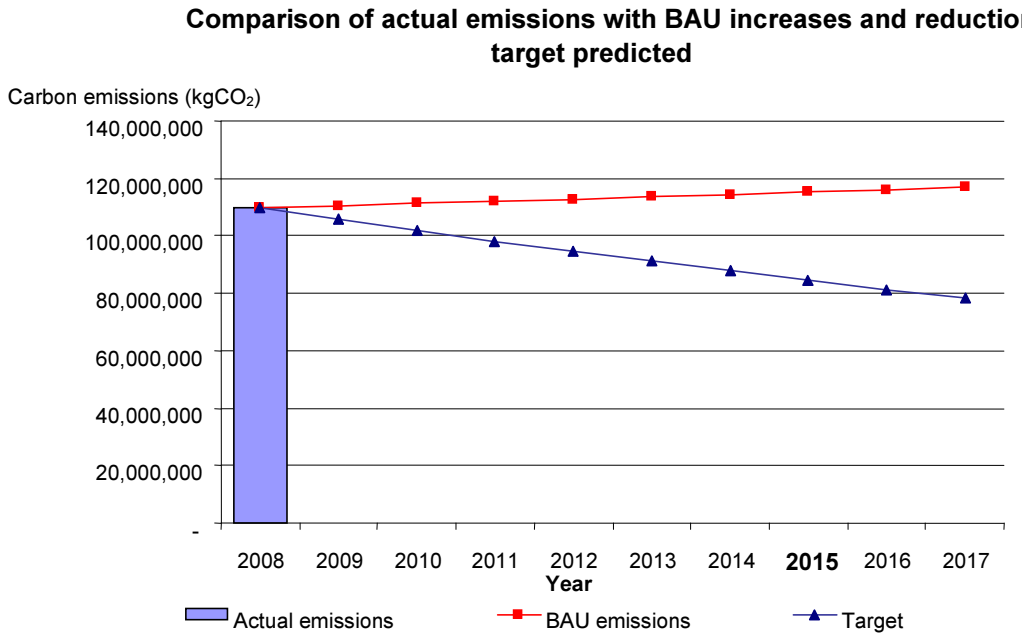


Figure 4: Carbon Emissions comparison of Business as usual (BAU) and Target.

Carbon Management Projects

A list of carbon reduction projects has been developed through workshops and meetings with key Officers from across the Council. The projects in Table 1 are listed in descending order with the projects which will deliver the greatest carbon savings (the "big hitters") listed first. The table illustrates the amount of CO_2 that will be saved as a result of implementing the project and how it contributes to the overall reduction target. All projects are quantified in more detail in Appendix B.

1.7 Projects Identified and Quantified

Table 1: Carbon reduction projects

	Project	CO_2 Reduction (tonnes)	% of reduction target
1	Methane capture	3,500.0	12.8
2	Awareness Raising / Training	2,913.2	10.7
3	Building rationalisation	2,665.0	9.8
4	Food waste collections	2,011.0	7.4
5	3Rs Schools Project	1,873.0	6.9
6	Waste recycling centres	1,788.0	6.6
7	Alternative weekly collections	1,247.0	4.6
8	Extension of CHP network	1,040.0	3.8
9	Street lighting replacement	886.2	3.3
10	Duthie Park biomass	698.0	2.6
11	Fleet Projects	563.2	2.1
12	Conversion to renewables in 2 oil heated schools	390.1	1.4
13	Multi-occupancy paper recycling	378.0	1.4
14	PC Power Management	369.0	1.4
15	WEEE	320.0	1.2
16	CHP Gasification of Biomass	211.2	0.8
17	Office Recycling	206.5	0.8
18	Virtual Desktop Technology	197.7	0.7
19	Business Travel Projects	98.0	0.4
20	Pipe work insulation	97.4	0.36
21	Skene Square School-renewables	40.4	0.007
22	Catherine Street Community Centre-renewables	11.7	0.040
23	Urinal Controls	9.5	0.030
24	Marischal College-biomass	4.8	0.020
25	Tap and Flow controllers	1.0	0.004
26	Water Pond Treatment	0.7	0.003
	TOTAL	**21,520.6**	**79.12%**

If all projects listed above realise the savings quoted then we will achieve an 18% reduction on our baseline year.

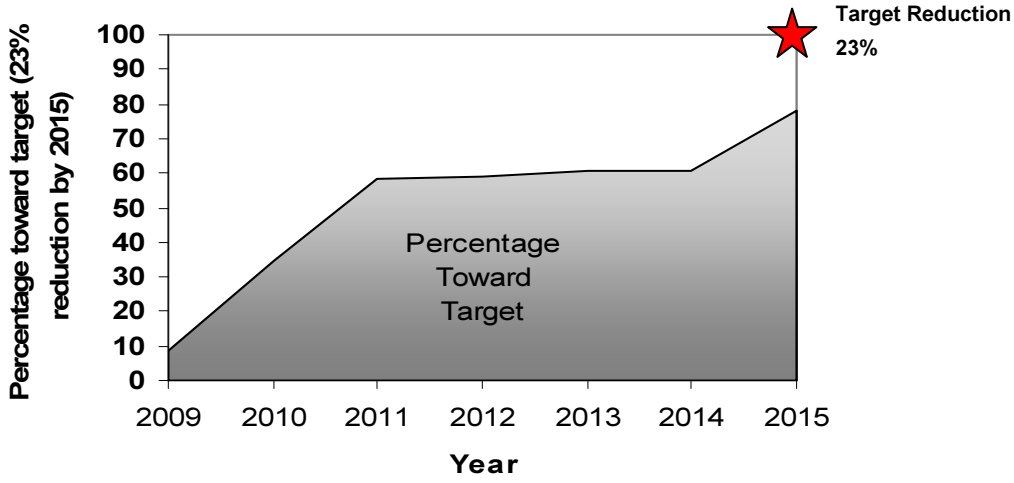
This equates to 21,521 tonnes of CO_2

1.8 Projected achievement towards target

From the projects listed in Table 1 above, it is clear that our aspirational target of 23% is achievable despite targeting most of the "low hanging fruit" during our previous undertaking of the programme.

Although, at present the proposed projects do not meet our full target of 23%, this Plan is a working document and is to be reviewed and updated on an annual basis. Therefore it is expected that further projects will be included over the lifetime of the Plan. Some of which are detailed in Appendix D.

Figure 4 below charts the projected carbon savings which will be delivered as each project is completed over time. At present the proposed projects meet 79% of the overall target by 2015.



Project Completion Year	2009	2010	2011	2012	2013	2014	2015	Target
Percentage Toward Target	9%	35%	58%	59%	61%	61%	79%	100%
Running Total of Completed Projects	3	13	22	23	24	24	26	

Figure 5: Projected achievement towards target over time

Carbon Management Plan Financing

The potential financial benefits to be gained by the Council from undertaking the Carbon Management Programme for the second time are significant.

The projects listed represent potential savings of over £2 million over the next 5 years.

At the time of writing around 98% of the financial requirement to implement these projects had been identified from a range of internal and external sources.

Table 2 below summarises the funding sources allocated to finance the proposed carbon management projects and highlights the amount of funding still required.

Table 2: Project financing

Funding Sources	£	Project
Housing Capital 2010/11 & 11/12	£4,400,000	Extension of Combined Heat & Power
Total	**£4,400,000**	
Non Housing Capital 2010/11	£125,000	Duthie Park Biomass
	£75,448	Street Lighting Replacement - Phase 1
Total	**£200,448**	
Central Energy Efficiency Fund	£171,300	Duthie Park Biomass
	£26,000	Skene Square School - Renewables
	£12,000	Catherine Street Community Centre - Renewables
	£15,690	Pipe work insulation
Total	**£224,990**	
Repair and Replacement Fund	£60,000	Skene Square School - Renewables
Total	**£60,000**	
Corporate Investment Fund / Spend to Save	£50,000	Water Saving Measures
	£310	Town House Ponds - Energy Management Unit
	£19,000	PC Power Management
Total	**£69,310**	
Previously Allocated	£64,000,000	Building Rationalisation - Non Housing Capital
	£2,413,000	Virtual desktops - Non Housing Capital 09/10
	£250,000	Multi-occupancy Paper Recycling - Non Housing Capital 08/09
	£241,340	Food Waste - 08/09 Non Housing Capital
	£40,000	Alternate Weekly - 08/09 Non Housing Capital
	£3,000	Awareness Raising and Training – Home Energy Conservation Act budget
	£1,120	Awareness Raising and Training - Sustainable Development Budget
	£1,600	Business Travel Projects - Pool Bicycles-Travel Budget
Total	**£66,950,060**	

External Grants & Funding		£1,000,000	Extension of CHP - Community Energy Saving Programme Grant
		£270,000	Marischal College Biomass - EU Interreg IVB Funding
		£126,700	Duthie Park biomass - Community And Renewable Energy Scheme Grant
		£14,246	Skene Square School - Renewables - Low Carbon Building Programme Grant
		£4,000	Catherine Street Community Centre - Renewables – Community And Renewable Energy Scheme Grant
		£70,278	Fleet Projects - Diesel Particulate Filters - Scottish Government Emission Reduction Grant
	Total	**£1,485,224**	
PPP/PFI		£120,000,000	3Rs New Schools Project
	Total	**£120,000,000**	
To be found		£3,500,000	Gasification of Combined Heat & Power
		£156,392	Fleet Projects - Diesel Particulate Filters
		£40,868	Street Lighting Replacement - Phase 2
		£25,000	Business Travel Projects - Bus fare cards
		£2,000	Fleet Projects - Smarter driver training
	Total	**£3,724,260**	

1.9 Financial costs and sources of funding

There are a number of finance mechanisms (both internal and external) available to fund activities that will lead to reductions in CO_2 emissions. These include:

Internal

- **Housing Capital Programme:** capital bids are submitted annually with a detailed analysis including payback period (5 years). Funding of £2.2milion per year for 10/11 and 11/12 is included in the Housing Capital Programme for extension of the Seaton CHP network.
- **Non-Housing Capital Programme:** capital bids are submitted annually with a detailed analysis including payback period (5 years). Through the Carbon Management Programme next year's Capital Bids are currently being worked up totalling over £200,000.
- **Spend to Save:** a mechanism which involves ring fencing and reinvestment of savings. Project bids can be submitted and approved at any time during the financial year;
- **Corporate Investment Fund:** For 08/09 approx £50,000 was secured to carry out water saving works;
- **Central Energy Efficiency Fund (CEEF):** in recent years CEEF has not been utilised to its full potential however a programme of projects has now been identified which will utilise the full fund, approx £530,000.

External

Grants and external funding are regularly utilised with monies received during 08/09 from such sources as the Carbon Trust, Low Carbon Building Programme, Scheme and Lottery Funding. At present it has been identified that grant funding amounting to over £1,200,000 will be applied for in 2010 from such sources as the Scottish Biomass Support Scheme, Community Energy Saving Programme and Local Authority Vehicle Emissions Reduction Grant. In addition the Council are taking part in several EU funded projects with over €270,000 to spend on various energy efficiency/carbon reduction projects over the next 3 years.

Carbon Investment Fund

Although there are several means of funding the projects proposed, none are specifically dedicated to carbon reduction. With competing Council priorities and decreasing budgets (a trend which is set to continue) often operational requirements are prioritised above carbon management. A resolution to this would be to introduce a fund dedicated to implementing carbon reduction projects.

It is recommended that a rolling loan scheme / small grant scheme (similar to the Central Energy Efficiency Fund which is currently used for a limited number of energy efficiency projects) should be introduced as a means of financing carbon reduction projects. This type of fund provides internal loans or small grants to finance projects within the Council's estate. Financial savings that are made are then returned to the fund, thus making it self-sustaining and driving performance efficiencies throughout the organisation. This would mean that a continuous programme of carbon reduction projects could be planned and financed without relying on such "one off" mechanisms as Capital Bids. This type of fund could enable the roll out of a programme of measures to tackle the schools estate which currently contributes to 18% of the Council's carbon footprint. The Carbon Investment Fund and how it could be financed is explained further in Appendix C.

1.10 Assumptions

For all projects it is assumed:

- Energy prices will increase over time;
- If the cost of fuel continues to increase the payback period for any proposed projects will be reduced;
- All potential projects will have an individual feasibility study carried out ensuring consistency across projects.

Actions to Embed Carbon Management

Aberdeen City Council remains committed to reducing its carbon emissions. The Carbon Management Strategy Group, chaired by the Chief Executive with the support of the Administration's Depute Leader, will take responsibility for ensuring that the Carbon Management Plan is delivered.

The Carbon Management Plan's performance will be regularly monitored, reported and reviewed. Carbon emissions will be added as one of the Corporate Business Plan's Critical Success Factors. The carbon emissions and associated projects will be reported annually by the Housing and Environment Head of Service to the Finance and Resources Committee with interim six monthly reports to the Carbon Management Strategy Group.

1.11 Corporate Interim Business Plan 2010-2013 – embedding CO_2 saving across the Council

The Council's Administrative Policy aims to minimise the Council's environmental impact and this includes an aspirational target of being carbon neutral by 2020. This Policy also commits that all new council developments will be carbon neutral. In order to strengthen these corporate aims and encourage commitment to the Carbon Management Programme it is planned to incorporate the Councils CO_2 reduction target of 23% by 2015 in to the Corporate Business Plan.

The Carbon Management Plan supports the Councils Environment Strategy which aims to promote efficient use of resources as well as Aberdeen's Local Housing Strategy 2006-2011. The Council's Sustainable Building Standards for Council Buildings and Developments 2008 ensure that all Council developments meet sustainable development principles early in the development and design process.

These organisational targets align with the Aberdeen's Community Plan and the carbon reducing targets within Aberdeen's Single Outcome Agreement (SOA). The SOA, in turn demonstrates the City's carbon reducing contribution that will help Scotland meet the carbon reduction targets within the Climate Change Act (Scotland) 2010.

1.12 Policy Alignment – saving CO_2 across Council operations

Aberdeen City Council is currently developing a Responsible Procurement Strategy which updates our Sustainable Procurement Strategy, originally developed as an outcome of our last CMP. This work is being undertaken by the Central Procurement Unit, a joint service with Aberdeenshire Council and aims to be adopted by the end of 2010;

As a result of this programme it is planned to account for carbon impacts within all Capital Bids. This will be used as one of the measures to gauge the merit of Business Cases. The introduction of the Carbon Reduction Commitment in April 2010 will allow for a current cost of carbon to be used;

In addition it is recommended that all works carried out under the Repair and Replacement budget are evaluated for carbon / energy savings at the planning and evaluation stage. This will ensure the optimum solution is agreed rather than continuing to replace like for like.

It is also planned to review business and staff travel. This will involve greater scrutiny of travel applications and encouraging staff to use alternative technologies for example telephone conferencing or video conferencing. A hire car policy will also be introduced to only allow staff to hire fuel efficient vehicles.

1.13 Data Management – measuring the difference, measuring the benefit

Energy consumption data is input into a data monitoring system and extracted by the Energy Management Team on a monthly basis. The Energy Management Team uses this information to measure performance and consider how energy may be reduced through technical or technology improvements. This also assists when the Council considers building improvements and Information Communication Technology (ICT) improvements. The Council also uses its in-house waste management data system to measure waste tonnage collected and converts this into carbon emissions. Fleet emissions' data is also recorded on a fleet management system which records monthly fuel consumption.

In order to actively manage the Council's carbon footprint, emissions will be recorded and updated annually. This data will be used to track progress and inform future project initiation.

1.14 Responsibility – being clear that saving CO_2 is everyone's job

The Carbon Management Plan will be most successful if everyone is involved with the process. In order to ensure that all staff can fully participate, an Awareness Programme is being designed to directly engage with staff. Carbon Management will be a core value that is established as part of all staff induction and reinforced through corporate and service specific training and programmes. We aim to ensure that staff will bring their home energy efficiency good habits to work.

As part of this programme, Environmental Champions will be established across services to ensure that local services meet corporate targets. This is a way to measure the effectiveness of corporate campaigns.

Programme Management of the CM Programme

It is important that the Carbon Management Plan's performance is reviewed regularly to ensure that action is being taken to reduce the Council's own emissions. Therefore the CO_2 emissions will be added to as one of the Corporate Plan's Critical Success Factor which is reported on annually, with interim six monthly reports.

In addition, the baseline and target will be incorporated across all services Key Management and Performance Indicators, within their Balance Score Cards. Reporting will be carried out on a regular basis in line with Committee Cycles.

The Carbon Management governance structure is detailed below:

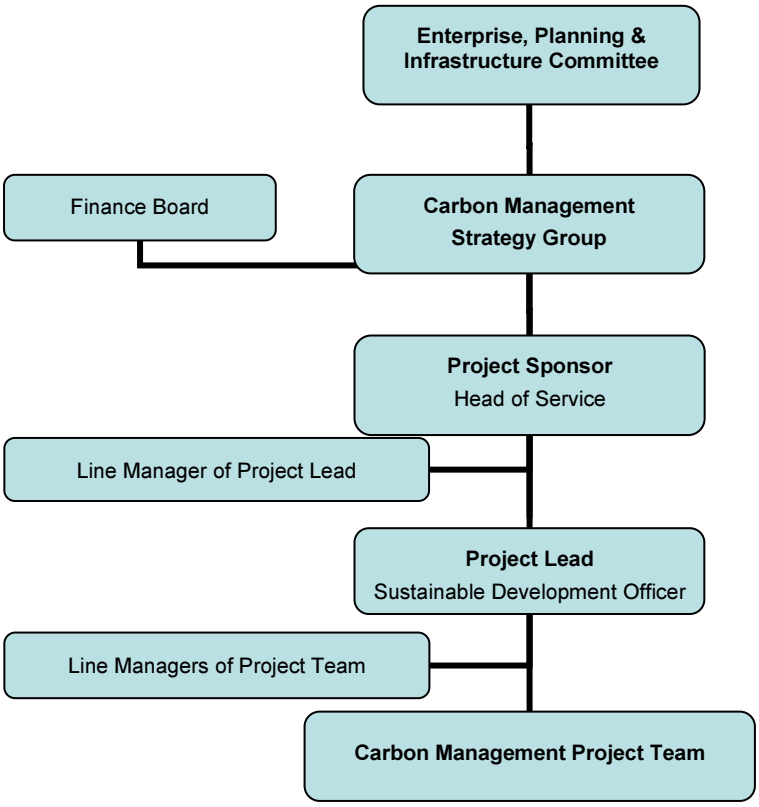


Figure 6: Carbon Management Governance Structure (2009)

1.15 The Strategy Group – strategic ownership and oversight

The Carbon Management Strategy Group will meet every six months to review performance and progress and will approve the development of future Carbon Management projects in advance of the Annual Budget Setting Process. The Group is led by the Chief Executive, with membership from the Council's Depute Leader, the Head of Finance, the Head of Procurement and the Project Sponsor. The Group is accountable for the success, direction and overall management of the project. Group members are expected to undertake a project assurance role and are responsible for the commitment of resources to the project, such as personnel, cash and equipment. They are the key decision makers.

1.16 The Project Team – delivering the projects

The Carbon Management Project Team will meet every two months to ensure that all projects are on schedule. This Group will act as a forum to work collaboratively in order to mitigate risk and remove barriers that may prevent the successful completion of individual projects. The project team is formed from Officers representing a wide range of areas including; energy management, finance, facilities, ICT, lighting, procurement, sustainable development and waste.

The Project Team is responsible for the:

- Execution of the Carbon Management programme and the delivery of projects
- Performance Reporting
- Development of future programme options
- Development of Initial Business Cases
- Annual Progress Review

1.17 Annual Progress Review

The Carbon Management Project Team will produce an Annual Progress Review Report for consideration by the Strategy Group, CMT, and Councillors. The annual review will be published on the Council's internal and external websites. The review will be timed to fit in with the requirement to report annually to the Carbon Trust, at the end of each financial year.

The progress review will measure the costs and benefits from the Carbon Management Programme including any:

- financial savings, either cashable or returned
- CO_2 savings against the target
- less quantifiable benefits, such as influencing the local community

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Appendix A: Carbon Management Matrix - Embedding

	CORPORATE STRATEGY	PROGRAMME MANAGEMENT	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	POLICY ALIGNMENT *
5 **BEST**	• Top level target allocated across organisation • CO_2 reduction targets in Directorate Business Plans	• Senior Management Team/Committee/Court review progress against targets on quarterly basis • Quarterly diagnostic reports provided to Directorates • Progress against target published externally	• CM integrated in responsibilities of senior managers • CM part of all job descriptions • Central CO_2 reduction advice available • Green Champions leading local action groups	• Quarterly collation of CO_2 emissions for all sources • Data externally verified • M&T in place for: ○ buildings ○ street lighting ○ waste ○ transport	• All staff given formalised CO_2 reduction: ○ induction and training ○ communications • Joint CM communications with key partners • Staff awareness tested through surveys	• Finance committed for 2+yrs of Programme • External funding being routinely obtained • Ring-fenced fund for carbon reduction initiatives	• CO_2 friendly operating procedure in place • Central team provide advice and review, when requested • Barriers to CO_2 reduction routinely considered and removed
4	• CO_2 reduction commitment in Corporate Strategy • Top level targets set for CO_2 reduction • Climate Change Strategy reviewed annually	• Sponsor reviews progress and removes blockages through regular Programme Boards • Progress against targets routinely reported to Senior Mgt Team	• CM integrated in to responsibilities of department heads • Senior Management Team/Committee/Court regularly updated • Staff engaged though Green Champion network	• Annual collation of CO_2 emissions for: ○ buildings ○ street lighting ○ transport ○ waste • Data internally reviewed	• All staff given CO_2 reduction: ○ induction ○ communications ○ CM matters communicated to external community	• Coordinated financing for CO_2 reduction projects via Programme Board • Finances committed 1yr ahead • Some external financing	• Comprehensive review of policies complete • Lower level policies reviewed locally • Unpopular changes being considered
3	• CO_2 reduction vision clearly stated and published • Climate Change Strategy endorsed by Cabinet and publicised with staff	• Core team regularly review CM progress: ○ actions ○ profile & targets ○ new opportunities	• An individual provides full time focus for CO_2 reduction and coordination across the organisation • Senior Sponsor actively engaged	• Collation of CO_2 emissions for limited scope i.e. buildings only	• Environmental / energy group(s) given ad hoc: ○ training ○ communications	• A view of the cost of CO_2 reduction is developing, but finance remains ad-hoc • Some centralised resource allocated • Finance representation on CM Team	• All high level and some mid level policies reviewed, irregularly • Substantial changes made, showing CO_2 savings
2	• Draft Climate Change Policy • Climate Change references in other strategies	• Ad hoc reviews of CM actions progress	• CO_2 reduction a part-time responsibility of a few department champions	• No CO_2 emissions data compiled • Energy data compiled on a regular basis	• Regular awareness campaigns • Staff given CM information on ad-hoc basis	• Ad hoc financing for CO_2 reduction projects	• Partial review of key, high level policies • Some financial quick wins made
1 **Worst**	• No policy • No Climate Change reference	• No CM monitoring	• No recognised CO_2 reduction responsibility	• No CO_2 emissions data compiled • Estimated billing	• No communication or training	• No specific funding for CO_2 reduction projects	• No alignment of policies for CO_2 reduction

* Major operational policies and procedures, e.g. Capital Projects, Procurement, HR, Business Travel

Appendix B: Definition of Projects

Awareness Raising & Training Projects

Project: **Reference:**	**Awareness Raising & Training** **ACC - 01 - Awareness**
Owner (person)	Amy Smith / Alison Leslie
Department	Environmental Sustainability
Description	Launch an overall awareness campaign covering all aspects of carbon reduction. Plan to carry out awareness campaigns at regular intervals to increase effectiveness. This will include: A. Establishing a network of environmental champions; B. Establishing an environmental training package for staff to include an online learning module, corporate induction training etc; C. Incorporating environmental competencies into all new job descriptions; D. Raising awareness of teleconferencing facilities and discouraging unnecessary travel; E. Raising awareness and encouraging staff to recycle batteries using containers provided; F. Raising awareness of the WEEE directive; G. Raising awareness of the Council's Vehicle Idling Policy; H. Encouraging staff to cancel junk mail and unwanted publications; I. Provide household energy meters for public and staff to hire; J. Publishing quarterly energy consumption figures and carbon emissions on Council webpage.
Benefits	• **Financial savings:** £46,007 (based on average energy costs) • **CO_2 Emissions reduction:** 2913.2 tonnes CO_2 • 53.4% of annual target • 10.7% of overall target
Funding	• **Project Cost:** £4,120 • **Cost breakdown:** ○ £1,000 per year (for awareness materials); ○ £120 battery recycling; ○ £3,000 (based on 20 energy meters at £150 per meter) • **Source of funding:** to be identified
Resources	• Staff time and volunteers to undertake Environmental Champions role
Ensuring Success	• **Key success factors:** availability and willingness of staff to undertake role of environmental champion • **Principal risks:** insufficient staff resource to undertake projects
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ **start date:** April 2010 ○ **completion date**: Awareness campaign will occur annually
Notes	Emissions reduction calculations based on achieving a 5% annual reduction in building consumption (public buildings, schools, housing) as a result of the awareness campaign and introducing an Environmental Champions network. Financial savings based on energy costs (approx 2/3 gas @ 2.66p/kWh, 1/3 electricity @10p/kWh)

Business Travel Projects

Project: **Reference:**	**Review and Reduction of Staff Business Travel** **ACC - 02 - Business Travel**
Owner (person)	Louise Napier / Lyle Smith
Department	Transport Planner / Service Design and Development
Description	A number of initiatives are planned to reduce staff business travel by 10% by 2015 and encourage staff to use sustainable modes of transport whilst at work. However, the majority of these initiatives also encourage sustainable commuting, yet this is not included in the 10% reduction target as accurate figures are not yet known for commuting. These initiatives include: A. a review of essential car user status and parking permits; B. a review of car parking provision; C. promotion of teleconferencing / videoconferencing facilities combined with greater scrutiny of travel applications; D. the introduction of targets for managers to reduce staff business mileage; E. provision of travel information in new employee induction packs or corporate induction; F. provision and promotion of bus fare cards for use when travelling to meetings, events and visits within the City; G. expansion of the pool of bicycles to make them available at a wider selection of locations; H. expansion of the Council's fleet of pool cars. It is anticipated that the Council pool car fleet will ultimately form the basis of a city-wide Car Club for Aberdeen; I. implementation of bus and bicycle salary sacrifice schemes; schemes whereby the employee gives up the right to receive part of their pay, while the Council purchases a bicycle or a public transport season ticket for that employee, deducting the cost directly from the employee's salary; J. promotion of Active Travel Initiatives as well as regular awareness campaigns; K. the re-launch of the Council's car share database; L. increasing the number of cycle lockers at Council buildings; M. installation of electric vehicle charging points in selected Council car parks.
Benefits	• **Financial savings**: up to £30,140 • **CO_2 Emissions reduction:** 98 tonnes CO_2 1.8 % of annual target 0.36 % of overall target
Funding	• **Project cost:** £26,600 (approx) • **Source of funding:** green travel budget / other amount to be confirmed
Resources	• Awareness raising of initiatives, funding, staff resource
Ensuring Success	• **Key success factors:** availability and willingness of staff • **Principal risks:** allocating funding, poor uptake of initiatives
Measuring Success	• Biannual staff travel survey – this will give an indication of changes in how staff travel to work; • Annual update of carbon emissions baseline.
Timing	○ **start date:** April 2010 ○ **completion date**: April 2015
Notes	The 10% reduction target was calculated using total staff business travel figures for 2008/09. Financial savings are based on average costs provided in baseline tool.

Buildings Projects

Project: **Reference:**	**Building Rationalisation** **ACC - 03 - Buildings**
Owner (person)	Andrew Sproull / Amy Smith
Department	Marischal College Project Director / Environmental Sustainability
Description	This project proposes the closure of 2 main Council office buildings, St Nicholas House and Summerhill. These will be replaced by Marischal College which is currently being refurbished to a high environmental standard (BREEAM "Excellent" standard) with biomass providing 25% of heat demand. Further buildings for rationalisation may be identified in future.
Benefits	• **Financial savings:** £466,973 (St Nicholas House = £298,704, Summerhill = £168,269) • **CO_2 Emissions reduction:** 2,664.7 tonnes of CO_2 (1,604 tonnes of CO_2 from St Nicholas House 1,075 tonnes of CO_2 from Summerhill minus 14.3 tonnes of CO_2 from Marischal College) • 48.9 % of annual target • 9.8 % of overall target
Funding	**Project cost:** to date the capital cost for Marischal College has been estimated at £64 million Funding has been allocated from Council budgets
Resources	• External contractors undertaking refurbishment works in Marischal College
Ensuring Success	• Principal risks: St Nicholas House and Summerhill remain in use. It is not yet decided what will happen to these buildings on closure i.e. sale, demolition etc.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: 01/12/09 ○ completion date: end 2011
Notes	Financial savings based on energy prices only. Carbon emission reduction based on energy savings as a result of the closure of Summerhill and St Nicholas House. Marischal College carbon emissions based on estimated heat demand only. This figure does not currently include carbon emissions associated with electricity demand therefore does not give a full representation of overall energy demand (thus estimated carbon savings will decrease when electricity accounted for). **This figure, and associated carbon emissions will be updated before Committee on 24th March.**

Project: **Reference:**	**3Rs Schools Project: Reorganise, Renovate, Rebuild** **ACC - 04 - Buildings**
Owner (person)	Colin Hunter, 3Rs Project Manager
Department	Head of Resources Development & Delivery
Description	The 3Rs Project is the first step in the regeneration of Aberdeen City Council's schools estate. The initial phase will see 2 secondary schools replaced, 7 new primary schools built and one refurbished, and the incorporation of two special schools within the new developments. All schools are specified to meet very high standards of sustainability, and are expected to achieve BREAAM (Building Research Establishment Environment Assessment Method), ratings of 'Excellent' for new schools and 'Very Good' for refurbishments.
Benefits	• **CO_2 Emissions reduction:** 1,873 (estimate) • 34.4 % of annual target • 6.9 % of overall target
Funding	• **Project cost:** £120 million • **Source of funding:** PFI/PPP
Resources	The 3Rs Project is being implemented through a Public Private Partnership (PPP) using a Non-Profit Distributing Organisation, with support from the Scottish Government.
Ensuring Success	• Ensuring new builds meet set standards.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ Construction start date: early 2008 ○ Construction completion date: late 2010
Notes	The 3Rs project has so far saved 216 tonnes from the two completed schools, with a projected saving of 1,873 tonnes by end of 2010 when all schools will be finished.

Project: **Reference:**	**Extension of CHP network** **ACC – 05 - Buildings**
Owner (person)	Janice Lyon
Department	Energy Management Unit
Description	Extend the CHP network to include a further 8 multi-storey housing blocks in the Seaton area. Aberdeen Heat & Power will develop and manage this project, subject to the full capital costs being covered.
Benefits	• **Financial savings:** £315, 900 • **Payback period:** 13.8 years • **CO_2 Emissions reduction:** 1040 tonnes of CO_2 • 19 % of annual target • 3.8 % of overall target
Funding	**Project cost:** Approx £4,363,000 Community Energy Saving Programme (CESP) grant submitted – hope to be awarded around £1million towards costs Funding of £2.2milion per year for 10/11 and 11/12 included in Housing Capital Programme.
Resources	• Aberdeen Heat and Power, an arms length company will deliver the project in conjunction with Aberdeen City Council.
Ensuring Success	• Key success factors: allocation of funding, co-operation of tenants.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: 01/06/2010 ○ completion date: 31/12/2011
Notes	**Financial savings** = approximately 50% reduction in heating bills for each occupant taking the new heating. Current heating costs average £18 per week. Potential to link in 675 flats **Payback period** = Potential savings to occupants of £315,900 per year (£9 per flat per week x 52 weeks x 675 flats). Total cost £4,363,000 divided by £315,900 gives payback period of 13.8 years.

Project: **Reference:**	**Duthie Park Winter Gardens – Conversion to Biomass** **ACC - 06 - Buildings**
Owner (person)	Alan Findlay & Janice Lyon
Department	Duthie Park & Energy Management Unit
Description	This project proposes to replace existing oil and gas heating systems at Duthie Park Winter Gardens with a biomass system, and, to include in the biomass fuel supply contract the use of surplus wood from our local parks, with a view to developing a wood fuel production base in Aberdeen, as an income generating project, managed by our Parks Services.
Benefits	• **Financial savings***:* £65,090 per annum • **Payback period:** less than 3 years • **CO_2 Emissions reduction:** 697.9 tonnes CO_2 per annum • 12.8% of annual target • 2.6% of overall target
Funding	**Project cost:** £423,000 Covered through a combination of: External grant = £126,700 Non-Housing Capital programme = £125,000 Central Energy Efficiency Fund (CEEF) funding = £171,300
Resources	• Apply for grant funding: initial application to the Community and Renewable Energy Scotland (CARES) scheme, and with the fall back position of applying to the Scottish Biomass Support Grant or a Low Carbon Buildings Fund • Tender for the supply and installation of the biomass boiler. The successful company would be responsible for applying for Planning Permission and Building Warrant. • Tender for the supply of woodchip for a three year period.
Ensuring Success	• Gaining planning permission and building standards approval • Gaining grant funding, however back up schemes have been identified
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ Feasibility study start date: 01/12/09 ○ Committee approval: 23/02/2010 ○ Implementation start date: 24/02/2010 ○ Estimated completion date: 01/02/2011
Notes	

Project: **Reference:**	**Replacement of oil heating with renewable in 2 schools** **ACC- 07 - Buildings**
Owner (person)	Janice Lyon / Alison Leslie
Department	Energy Management Unit / Environmental Sustainability Team
Description	A feasibility study will be carried out by The Carbon Trust based on Stoneywood and Dyce Primary schools to investigate the most viable option for conversion of old oil heating to renewables. The findings of this study will be used to identify the most suitable oil heated schools to tackle.
Benefits	• **Financial savings:** to be determined from feasibility study • **Payback period:** to be determined from feasibility study • **CO_2 Emissions reduction:** 390.1 tonnes CO_2 • 7.2 % of annual target • 1.4 % of overall target
Funding	• **Project cost:** £250k (indicative cost) • **Source of funding:** The Carbon Trust will carry out initial feasibility studies at no cost to the Council
Resources	• The Carbon Trust will undertake the feasibility study on behalf of the Council.
Ensuring Success	• External grant funding will be applied for with the balance of costs coming from CEEF plus a contribution from the non-housing capital programme as a spend to save project. There is a risk of the project not getting spend to save funding.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ Feasibility start date: Jan 2010 ○ Feasibility completion date: March 2010 ○ Completion of works: September 2011
Notes	Carbon calculations are based on oil consumption of both schools being provided by renewable energy sources. Oil Consumption: Dyce = 1,237,172 kWh Stoneywood = 353,127 kWh If only the energy provided by oil was converted to renewables it would result in a carbon saving of 390.1 tonnes CO_2.

Project: **Reference:**	**Seaton CHP-Gasification of Biomass** **ACC - 08 - Buildings**
Owner (person)	Janice Lyon
Department	Energy Management Unit
Description	Conversion of Seaton CHP from gas powered to gasification of biomass to provide heating to all existing properties linked to Seaton district heating network, plus generate electricity. Aberdeen Heat & Power will develop and manage this project. Awaiting result of University of East Anglia who are installing same equipment, which is due to be commissioned January 2010.
Benefits	• **Financial savings:** No financial savings would be expected in the short term if Aberdeen Heat & Power has to repay the capital borrowing out of the on-going running costs. The financial benefits would be expected in the longer-term through stable heat prices to the Council at a time when fossil fuel prices are expected to be increasing and volatile • **Payback period:** Not applicable • **CO_2 Emissions reduction:** 211.2 tonnes of CO_2 • 3.9 % of annual target • 0.8 % of overall target
Funding	**Project cost:** Approx £3.5 million required Biomass CHP would generate additional income through either the Renewable Heating Incentive for the heat provided to buildings, or double Renewable Obligation Certificates (ROCS) for the electricity generated. This additional income may enable Aberdeen Heat & Power to borrow a large proportion of the capital costs associated with this project.
Resources	• High level of funding required • External specialist engineer for design and conversion work to be appointed by Aberdeen Heat & Power • Reliable biomass supply
Ensuring Success	• Funding needs to be identified • Awaiting outcome of pilot project in England
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: 01/06/11 ○ Completion date: 01/06/2012
Notes	

Project: **Reference:**	**Skene Square School: installation of renewables** **ACC - 09 - Buildings**
Owner (person)	Sandra Jacques Andre, Janice Lyon & Frank Judson
Department	Energy Management Unit & Resources Management
Description	**Phase one:** to replace old oil burning boiler with dual fuel gas boiler. In addition install solar water heating, which will provide approx 30% of hot water requirement. **Phase two:** to install a gas supply to the school plus change the burner on one of the boilers from oil to a dual fuel burner so that the heating and balance of the hot water is gas fuelled, rather than oil fuelled.
Benefits	• **Financial savings:** £ 21,669 (£4,699 for solar thermal installation and £16,970 for boiler replacement) • **Payback period:** 3 years for the solar works; 4 years for the boilers to be replaced • **CO_2 Emissions reduction:** 40.4 tonnes of CO_2 • 0.7 % of annual target • 0.007 % of total target
Funding	• **Project cost:** approx £100, 000 • **Source of funding:** Council's Repair & Replacement budget for the boiler= £60,000 Central Energy Efficiency Fund (CEEF) = approx £26,000 Low Carbon Building Programme Phase 2E = £14,246 • Solar panel and boiler costings already worked up and approved • Gas supply costings currently being worked up
Resources	• Resources fully identified
Ensuring Success	• Gas supply must be installed when School is closed for vacation. This will either be at Easter or in summer.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: 05/2009 ○ installation of solar panel: 11/2009 ○ installation of boiler:10/2009 ○ installation of gas supply: 01/04/2010 (Easter or summer holidays) ○ completion date: 01/04/2010 (or during summer holidays)
Notes	

Project: **Reference:**	**Pipe Work and Boiler Room insulation** **ACC - 10 - Buildings**
Owner (person)	Janice Lyon & Sandra Jacques-Andre
Department	Energy Management Unit
Description	A two year rolling programme of pipe and boiler room insulation in Council buildings. Phase 1: insulation of 3 properties Phase 2: insulation of 15 boiler rooms Phase 3: insulation of further properties (yet to be identified)
Benefits	• **Financial savings:** up to £16,849.13 • **Payback period:** 1 year (average) • **CO_2 Emissions reduction:** 97.4 tonnes of CO_2 (Phase 1 – 17.4 tonnes of CO_2 Phase 2 – 80 tonnes of CO_2) • 1.8 % of annual target • 0.36 % of overall target
Funding	• **Project cost:** £15,690 • **Source of funding:** Central Energy Efficiency Fund (CEEF) • **Phase 1:** insulation completed by end June 09 • **Phase 2:** insulation completed by end April 10
Resources	• Project will be delivered within current resources
Ensuring Success	• Ensure further properties are identified for Phase 3.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: 29/04/2009 ○ installation of phase 1: 05/2009 ○ installation of phase 2: 04/2010 ○ installation of phase 3: tbc ○ completion date: ongoing
Notes	

Project: **Reference:**	**Catherine Street Community Centre** **ACC - 11 - Buildings**
Owner (person)	Janice Lyon & Kevin Christie
Department	Energy Management Unit
Description	Installation of an air source heat pump to Catherine Street Community Centre. This will replace an old oil fuelled heating system.
Benefits	• **Financial savings:** £2,590 (approx) • **Payback period:** 6.2 years • **CO_2 Emissions reduction:** 11.7 tonnes of CO_2 • 0.2 % of annual target • 0.04 % of overall target
Funding	• **Project cost:** £16,000 • **Source of funding:** Central Energy Efficiency Fund (CEEF)
Resources	• This project will be delivered within current resources • External grant funding will be applied for to offset the capital costs
Ensuring Success	• **Key success factors:** successful appointment of external contractor • **Principal risks:** technology does not deliver anticipated savings
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ Feasibility study start date: 01/12/2009 ○ Estimated completion date: 01/07/2010
Notes	Carbon savings based on use of EPC software and assuming 100% Air Source Heat Pump heating and 0% oil heating.

Project: **Reference:**	**Marischal College – Installation of biomass heating system** **ACC - 12 - Buildings**
Owner (person)	Andrew Sproull
Department	Programme Director, Marischal College
Description	Installation of a biomass heating system into Marischal College, the new Council Corporate Headquarters. This building is currently being refurbished to a high environmental standard (BREEAM "Excellent"). The biomass system will provide up to 25% of the heating demand for the building, replacing 2 gas fired boilers.
Benefits	• **Financial savings:** negligible • **CO_2 Emissions reduction:** 4.78 tonnes of CO_2 (based on predicted heating demand of 25% gas) • 0.09 % of annual target • 0.02 % of overall target
Funding	**Project cost:** £270,000 approx Funding will be allocated from an EU Interreg IVB funded project, Build with CaRe.
Resources	• Secure, local supply of biomass fuel
Ensuring Success	• Ensure completion of building construction within Build with CaRe project timescale (by 2011).
Measuring Success	• Achievement of BREEAM "Excellent" certification • Annual update of carbon emissions baseline
Timing	○ Feasibility study start date: 01/12/09 ○ completion date: 01/09/2011
Notes	

Fleet Projects

Project: **Reference:**	**Undertake a Green Fleet Review** **ACC - 13 - Fleet**
Owner (person)	Nigel Buchan
Department	Fleet Manager
Description	The Energy Saving Trust offer free Green Fleet Reviews to provide tailored fleet management advice to help lower running costs, reduce environmental impact and enhance corporate social responsibility. The Council are eligible to sign up for a free review. As a result of the review it is hoped to implement various fuel saving projects, such as: A. Increase the number of fleet vehicles using biodiesel from 2 to 20. The most polluting HGVs (up to 3.5 tonnes i.e. recycling trucks) will be targeted first; B. Fit up to 20 diesel particulate filters to heavy polluting fleet vehicles; C. Undergo Smarter Driver Training through the Energy Saving Trust.
Benefits	• **Financial savings:** up to £185,085 • **CO_2 Emissions reduction:** 563.2 tonnes CO_2 • 10.3 % of annual target • 2.1 % of overall target ○ *Biodiesel:* 88.6 tonnes CO_2 ○ *Diesel particulate filters:* 0.218 tonnes CO_2 ○ *Smarter driver training:* 474.4 tonnes CO_2
Funding	• **Project cost:** The Green Fleet Review is free; however the recommendations may require funding. The projects already suggested will cost a total of £228,670. This can be broken down as follows: ○ *Biodiesel*: can be implemented within existing resources; ○ *Diesel particulate filters:* £226,670; ○ *Smarter driver training:* £2,000; • **Source of funding:** various sources including Local Authority Vehicle Emissions Reduction Grant Scheme,
Resources	• Energy Saving Trust can provide a green fleet review
Ensuring Success	• **Key success factors:** availability and willingness of staff and EST • **Principal risks:** gaining funding for projects
Measuring Success	• Monthly fuel consumption figures • Annual update of carbon emissions baseline
Timing	○ **start date:** April 2010 ○ **completion date**: Dec 2011
Notes	

ICT Projects

Project: **Reference:**	**PC Power Management Software** **ACC- 14 - ICT**
Owner (person)	Lyle Smith / Sandra Massey (ICT Operations Manager)
Department	Service Design and Development
Description	A version of PC power management software has been trialled on 101 PCs during November 2009. This project proposes to roll out the software to all 4,500 PCs. This will allow power management policies to be applied to all PCs without adversely affecting the user.
Benefits	• **Financial savings:** £67,500 in energy costs • **Energy savings:** 675,000 kWh • **CO_2 Emissions reduction:** 369 tonnes of CO_2 • 6.8 % of annual target • 1.4 % of overall target
Funding	• **Project cost:** £19, 000 approx (Initial Licence fee plus fee per PC) • **Operational costs:** Annual maintenance fee of approx £9 per PC • **Source of funding:** Spend to Save bid
Resources	• Procurement exercise to be undertaken to purchase software
Ensuring Success	• Key success factors: successful procurement process and roll out
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ Trial period start date: 06/11/2009 ○ Trial period end date: 20/11/2009 ○ Spend to Save submitted to committee: 06/05/2010 ○ Procurement phase: May/June 2010 ○ Implementation date: 01/09/2010
Notes	Calculations are based on the results of the Care Taker Evaluation Report (Jan 2010). Care Taker was the PC software trialled on 101 PCs.

Project: **Reference:**	**Virtual Desktop Technology** **ACC - 15 - ICT**
Owner (person)	Lyle Smith / Rhona Atkinson
Department	Service Design and Development
Description	Roll out of "Virtual Desktop" technology to all suitable work stations (1452 within Marischal College alone) within the next 9-12 months. With this technology the desktop is accessed at a central location where all processing is carried out resulting in a reduction in power usage and lower maintenance costs. PCs will be replaced with thin client terminals which have a life cycle of 8 years. Currently a standard PC has a life cycle of 4 years.
Benefits	• **Financial savings:** £ 432,000 (approx) • **CO_2 Emissions reduction:** 197.7 tonnes of CO_2 • 3.6 % of annual target • 0.7 % of overall target
Funding	• **Project cost:** £2,413,000 • **Operational costs:** £171,000 • **Source of funding:** Capital funding obtained Quarter 4 2009
Resources	• **Additional resource:** project management, internal ICT resource backfill.
Ensuring Success	• **Key success factors:** implementing effective change management processes, carrying out adequate testing during proof of concept phase. • **Principal risks:** lack of change control will impact the stability of the Council's VDE when it is fully rolled out, older applications may not work in under a VDE scenario, VDE rollout not completed in time for move to Marischal College.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ Tender issued: 02/02/10 ○ Committee approval: 28/01/10 Finance & Resources committee ○ Pilot started: 19/08/10 (200 users) ○ Pilot completed: 13/10/10 ○ Rollout commences: 04/11/10 (160 users per week – total of 4000) ○ Completion date: 24/04/11
Notes	Costs are indicative and based on a draft scope of work issued to potential vendors and based on organisations of similar size, complexity and sector. Carbon Emissions are a conservative estimate with assumptions based on: • Reducing PC power usage from 150-20 watts per pc per hour; • PCs being switched on for 71/2 hours per day; • 260 working days in a year; • Rolling out to 1452 PCs in Marischal College.

Street Lighting Projects

Project: **Reference:**	**Street Lighting - Replacement of lamps to 55w** **ACC - 16 - Street Lighting**
Owner (person)	Brian Strachan
Department	Principal Engineer (Lighting)
Description	Replacement of around 5500 lantern units with 55w electronic control gear lanterns to S3/S4 code. The majority of these units are in residential areas. **Phase 1:** replacement of 3000 x 125w lantern units (25-30 years old) with 55w units **Phase 2:** replacement of 2500 x 100w lantern units (15-25 years old) with 55w units
Benefits	• **Financial savings:** £116,316.28 (Phase 1: £75,448.40, Phase 2: £40,867.88) • **Payback period:** Phase 1 = 6.0 years, Phase 2 = 9.2 years • **CO_2 Emissions reduction:** 886.18 tonnes CO_2 (Phase 1: 504.18 tonnes of CO_2, Phase 2: 382 tonnes CO_2) • 16.3 % of annual target • 3.3 % of overall target
Funding	• **Total project cost:** £825,000 (Remove Old lantern & Install new lantern, inc material) • **Operational costs:** £107,199.60 per annum, electricity only (Phase 1: £58,472.51, Phase 2: £48,727.09) • **Source of funding:** to be identified / non housing Capital bid has been submitted for Phase 1. Decision due by February 2010
Resources	• In order to carry out this work over one financial year, we would have to put the work out to tender. Local contractors are available to do the work.
Ensuring Success	• We are carrying out this type of work through general maintenance but in order to have the desired impact we need an injection of money to do all the work; • Aberdeen City Council has one of the highest average electrical loading per lamp in Scotland and this work will help to reduce this figure; • If not all lanterns are converted to the lower wattage we will continue to have higher emissions.
Measuring Success	• We will record the completion of the work on our inventory management system, from which data will be available to show the reduction in energy use. • Annual update of carbon emissions baseline
Timing	○ start date: 01/04/2010 (subject to funding approval) ○ completion date: 31/12/2011
Notes	This project is particularly important when considering the potential impact of the Aberdeen Western Peripheral route (AWPR) on additional street lighting provision. It has been calculated that due to de-trunking of several main roads the Council will be responsible for a further 417.09 tonnes CO_2 when the AWPR is built.

Waste Projects

Project: **Reference:**	**Methane Capture from Hill of Tramaud Landfill Site** **ACC - 17 - Domestic Waste**
Owner (person)	Peter Lawrence
Department	Waste Strategy
Description	Aberdeen City Council entered into an agreement with SITA UK Ltd to capture methane gas from the Hill of Tramaud landfill site. The site is expected to produce 1 megawatt of energy over 10 years, saving around 3,500 tonnes of carbon per year. The scheme will start operation in December 2009 but during the year the council (via SITA) have already collected and burnt approximately 1000 m3/hr of landfill gas at 40% methane content, reducing the greenhouse gas impact. Electricity produced will go into the national grid.
Benefits	• **CO_2 Emissions reduction:** 3,500 tonnes of CO_2 • 64 % of annual target • 12.8 % of overall target
Funding	• **Project cost:** SITA undertake project costs • **Operational costs:** SITA undertake any operational work
Resources	• SITA are undertaking the work on behalf of the Council
Ensuring Success	• Continued agreement with SITA.
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: 01/12/2009
Notes	

Project: **Reference:**	**Food waste collections** **ACC - 18 - Domestic Waste**
Owner (person)	Angus Sefton
Department	Waste collections and disposal
Description	The introduction of food waste collections to those properties currently served by a garden waste collection. Residents will be offered a kitchen caddy and biodegradable liners which, once full, will be removed from the caddy and placed in the garden waste bin for a co-mingled collection. Garden waste bins are emptied once fortnightly by the Council. Drivers: EU Landfill Directive/Landfill Allowance Scheme (LAS)/Landfill Tax/recycling targets, including Council's target of 40% household waste recycled by 2011 Benefits: environmental - associated with diversion of biodegradable waste from landfill (e.g. methane emissions) financial - avoidance of landfill tax and LAS penalties
Benefits	• **Financial savings:** £59K per year from 2010/11 • **CO_2 Emissions reduction:** 2011 tonnes of CO_2 • 36.9% of annual target • 7.4% of overall target
Funding	• **Project cost:** £241,340 (capital costs) • **Operational costs:** £173,383 • **Source of funding:** internal (approved by committee on 9 Oct 2007)
Resources	• Additional resource: caddies, liners, communications – funding approved as above
Ensuring Success	• Key success factors: Robust communications campaign, completion of building works • Principal risks: delay in the completion of building works at transfer station will result in delay of roll-out, financial situation of council may result in free liners no longer being made available which could decrease use of the service.
Measuring Success	• Recycling/composting rates are made available annually through SEPA and the WasteDataFlow • Tonnage data collected every time vehicle goes to unload – data are then used to inform WasteDataFlow returns • Annual update of carbon emissions baseline
Timing	○ Committee approval: 9/10/07 ○ 1st Phase roll out complete: April 2009 ○ 2nd Phase roll out due: December 2009
Notes	

Project: **Reference:**	**Introduction of paper recycling to multi-occupancy properties** **ACC - 19 - Domestic Waste**
Owner (person)	Angus Sefton
Department	Waste collection and disposal
Description	Introduction of on-street paper recycling facilities to those areas of the city with on-street or communal general refuse bins which are unsuitable for the kerbside collection service inc. courtyard developments, high rises. Approx 15,000 properties in total. Drivers: EU Landfill Directive/Landfill Allowance Scheme (LAS)/Landfill Tax/recycling targets, including Council's target of 40% household waste recycled by 2011 Benefits: environmental - diversion of biodegradable waste from landfill (e.g. methane emissions) financial - avoidance of landfill tax and LAS penalties
Benefits	• **Financial savings:** yr 3 - £16.5K, yr 4 – £20K (continue to increase yr on yr through savings in landfill tax which is subject to escalator) • **Payback period:** 3 years • **CO_2 Emissions reduction:** 378 tonnes of CO_2 • 6.9 % of annual target • 1.4 % of overall target
Funding	• **Project cost:** £250K capital cost (approx) • **Operational costs:** £106K over 4 years (approx) • **Source of funding:** internal, approved in Feb 2008
Resources	• **Additional resource:** 2 fixed term contract staff required to conduct site surveys, liaise with landlords/factors etc; additional bins; 1 driver and 2 loaders; vehicle to be leased from fleet
Ensuring Success	• **Key success factors:** Suitable location for paper bins must be available, co-operation of landlord/factor/residents, communication with residents. • **Principal risks:** lack of resources may result in a full, city-wide roll out of this service is not possible; residents/landlords/factors not willing for facilities to be placed on-site
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: Trials commenced August 2005, full roll-out approved by committee Feb 2008 ○ completion date (when it will deliver savings): First full year expected to be 2012/13 ○ Service will be replaced with co-mingled collection at an unknown later date
Notes:	

Project: **Reference:**	**Alternate Weekly Collections** **ACC - 20 - Domestic Waste**
Owner (person)	Peter Lawrence (strategy) Angus Sefton (operations)
Department	Waste strategy & waste collections and disposal
Description	Move from a weekly collection of general refuse and fortnightly collection of kerbside recycling to an alternate weekly collection system where both general refuse and recycling are collected once a fortnight. **Drivers:** EU Landfill Directive/Landfill Allowance Scheme (LAS)/Landfill Tax/recycling targets, including Council's target of 40% household waste recycled by 2011 **Benefits:** Environmental - diversion of biodegradable waste from landfill (e.g. methane emissions) Financial - avoidance of landfill tax and LAS penalties
Benefits	• **Financial savings:** estimated £431,000 • **CO_2 Emissions reduction:** 1247 tonnes CO_2 (based on an estimated 25% increase in tonnage presented at kerbside) • 23% of annual target • 4.6 % of overall target
Funding	• **Project cost:** £40K capital costs • **Operational costs**: £462K (approx)
Resources	• **Additional resource:** Staffing required for re-routing, communications and awareness, potential for increased traffic through call centre (to be found within existing arrangements) • Also require: educational materials.
Ensuring Success	• **Key success factors:** robust communication campaign, development/implementation of additional bin policy, effective enforcement • **Principal risks:** increase in kerbside-waste which may increase vermin and litter, if cannot carry out awareness and communication activities then public will be ill-informed and likely to be frustrated – will increase abusive behaviour towards staff and may increase side waste.
Measuring Success	• Monitoring of recycling tonnage collected, monitor waste arisings • Returns received from contractor each month – evaluation on-going • Annual update of carbon emissions baseline
Timing	○ start date: project agreed as part of transformation strategy in Feb 2008 ○ Further approval from Policy and Strategy Committee & Resources Management Committee in March 2009 ○ completion date (when it will deliver savings): service to commence March 2010
Notes	

Project: **Reference:**	**Waste Recycling Centres** **ACC – 21 – Domestic Waste**
Owner (person)	Peter Lawrence
Department	Waste strategy
Description	Development of two new recycling centres within the city: one to be developed in the west of the city, currently without a recycling centre and one to replace the existing Perwinnes Moss site in the north of the city.
Benefits	• **Financial savings:** £160K in landfill tax savings in 1st Year (approx) • **CO_2 Emissions reduction:** 1788 tonnes of CO_2 • 32.8 % of annual target • 6.6 % of overall target
Funding	• **Project cost:** as yet unknown • Operational costs, e.g. annual maintenance or running costs: Aberdeen City recycling centres are operated by waste management contractor and therefore operational costs will not impact directly on the council. Variation to the contract may be required and this may include an increase in the contractor fee. • **Source of funding:** waste management contractor (see above) and internal
Resources	• **Additional resource:** additional staff required to operation new centre in west of city – staffing requirements will be dealt with by contractor
Ensuring Success	• **Key success factors:** Identification of suitable locations for the centres, planning permission, contract variation (if required), publicising the facilities • **Principal risks:** suitable site(s) cannot be found or resistance from residents prevents development
Measuring Success	• Council recycling rate is monitored by SEPA and their resultant reports are available on-line. • Figures regarding tonnages taken in by the centres, comparisons between centres and the city's over al recycling rate are collected on a monthly basis. • Annual update of carbon emissions baseline
Timing	○ **start date:** search for locations currently underway ○ **completion date:** once centre(s) are operational (2015)
Notes	Landfill tax is currently £40 per tonne, to increase 1 April annually, until maximum of £72 in 2013. CO_2 emission reduction based on an estimated 3% increase in city recycling rate = 4,000 tonnes waste (approx)

Project: **Reference:**	**Waste Electronic and Electrical Equipment (WEEE) collections** **ACC - 22 - Domestic Waste**
Owner (person)	Peter Lawrence
Department	Waste strategy
Description	To implement collections of WEEE from all recycling centres within the city to assist with the implementation of the WEEE directive. **Drivers:** WEEE Directive/Landfill Tax/recycling targets, including Council's target of 40% household waste recycled by 2011 **Benefits:** Diversion of waste from landfill, therefore avoidance of landfill tax; more sustainable use of resources
Benefits	• **Financial savings:** £40 per tonne (landfill tax, rising by £8 every April until maximum of £72 in 2013) • **Payback period:** N/A • **CO_2 Emissions reduction:** 320 tonnes of CO_2 • 5.9 % of annual target • 1.2 % of overall target
Funding	• **Project cost:** Project is a direct result of the WEEE directive which places responsibility for funding of collections and recycling of this material with the producers. Therefore costs all come from compliance schemes and no cost to the council • **Operational costs:** As above. All costs to be borne by producers of WEEE • **Source of funding:** external, as above
Resources	• Additional resource: Project requires the provision of facilities at the four existing recycling centres within the city. As such, additional containers have been provided and staff are now required to direct people to these additional facilities. All building work and containers for collections are provided with the funding as noted above.
Ensuring Success	
Measuring Success	• Annual update of carbon emissions baseline
Timing	○ start date: (regulations came into force in UK in 2007) ○ completion date: all recycling centres accepting WEE on 14/09/2009 – immediate savings on landfill tax
Notes	EU Directive 2002/96/EC on waste electronic and electrical equipment

Project: **Reference:**	**Roll out of office recycling islands** **ACC - 23 - Internal Waste**
Owner (person)	Alison Leslie/ Simon Williams
Department	Enterprise, Planning & Infrastructure/Facilities Management
Description	Introduction of Recycling Islands, as per Balgownie One (AECC). Phase 1 – Introduction of a recycling service for cans, plastic bottles etc at council buildings. Recycling facilities to be sited together as recycling islands. Options appraisal for appropriate method for extending the current collection service. Balgownie One – currently has provision for paper, cans, glass and plastic bottles through external provider in contract with the AECC. The remainder of council buildings have general and paper waste collections collected through council contract. This service is currently at capacity. Phase 2 – removal of office desk bins – all waste to be disposed appropriately in recycling islands
Benefits	• **Financial savings:** to be confirmed • **CO_2 Emissions reduction:** 2065 tonnes CO_2 • 37.9 % of annual target • 7.6 % of overall target
Funding	• **Project cost:** to be confirmed • **Source of funding:** to be identified
Resources	• Staff time to set up recycling service and inform staff on new procedures
Ensuring Success	• Staff awareness and engagement in new recycling procedures • Sufficient monitoring of recycling service to ensure it is operating effectively and in general waste collection to determine waste reduction
Measuring Success	• Amount collected for recycling • Reduction in waste sent to landfill • Annual update of carbon emissions baseline
Timing	○ 2010 ○ Recycling islands in place by mid 2011
Notes	The emissions reduction figure has been calculated using figures from the trial at Balgownie One, AECC. The figures are based on Office recycling being introduced in the following Office buildings: St Nicholas House, Kirkgate House, Exchequer House, Spring Garden, Town House, Kittybrewster, Crown House and Balgownie One, AECC. However there is scope to roll this out to all Council offices and the schools estate.

Water Projects

Project: **Reference:**	**Installing Intelligent Controls for Urinals** **ACC - 24 - Water**
Owner (person)	Sandy Paterson
Department	Energy Management Unit
Description	Significant savings to be gained by installing intelligent controls to urinals in 76 Council owned public buildings. This will reduce water usage and hence reduce water costs. Implementing smart controls is a simple procedure which results in significant financial and water savings with short payback periods. This work will be outsourced to an OGC approved company and as such meets the requirement of achieving Best Value.
Benefits	• **Financial savings:** £47,000 • **Payback period:** 8 months • **CO_2 Emissions reduction:** 9.494 tonnes of CO_2 • 0.17 % of annual target • 0.03 % of total target
Funding	• **Project cost:** £22,753 • **Operational costs:** 2 year guarantee thereafter £60 every 2 years • **Source of funding:** Corporate Investment Fund 09 (internal) • Decision on funding made in June 09 by Finance Committee
Resources	• None
Ensuring Success	• Energy Officer Water to monitor progress
Measuring Success	• 6 monthly monitoring of water consumption • Annual update of carbon emissions baseline
Timing	○ start date: 01/06/2009 ○ completion date: 01/08/2009
Notes	

Project: **Reference:**	**Percussion Taps and Flow Controllers** **ACC - 25 - Water**
Owner (person)	Sandy Paterson
Department	Energy Management Unit
Description	Installation of Dart Valley Percussion Taps and Flow Controllers in Schools. These will reduce pressure and flow at taps and taps will only flow for a set time.
Benefits	• **Financial savings:** £5,000 • **Payback period:** 1 year • **CO_2 Emissions reduction:** 1.01 tonnes of CO_2 • 0.02 % of annual target • 0.004 % of total target
Funding	• **Project cost:** £4,500 • **Operational costs:** controllers have a 2 year guarantee • **Source of funding:** internal Corporate Investment Fund • Decision on funding by Finance Committee September 2009
Resources	• None
Ensuring Success	• Energy Officer Water will monitor progress
Measuring Success	• Water consumption will be measured 6 months after completion, thereafter monitored on a 6 monthly basis; • Annual update of carbon emissions baseline
Timing	○ start date: 31/10/2009 ○ completion date : 31/04/2010
Notes	

Project: **Reference:**	**Management of Town House ponds** **ACC - 26 - Water**
Owner (person)	Sandy Paterson
Department	Energy Management Unit
Description	Currently the two ponds (one outside St Nicholas House and one outside the Town House) are emptied, litter picked and refilled on an almost weekly basis. This project proposes to add a black reflective dye to the water which would give a mirror like surface, blocking the light and any algal growth as well as obscuring any litter. The pond would be cleaned and refilled twice a year to prevent any build up of litter, although any obvious litter could be reached with the extendable litter picker.
Benefits	• **Financial savings:** £ 10,843.49 • **Payback period:** 2 weeks • **CO_2 Emissions reduction:** 747 kg of CO_2 • 0.01 % of annual target • 0.003 % of total target
Funding	• **Project cost:** £310 • **Operational costs:** £1550 • Source of funding: internal funding from Revenue Account • Current costs to empty, clean and refill the 2 ponds on a weekly basis = £12, 195.32. Proposal to empty, clean and refill twice yearly and add in black dye amounts to savings of over £10,000.
Resources	• No additional resource required. Extra resource available as person who currently cleans/refills the ponds will only be required for 4 days instead of 25 days. • This project will be delivered within current resources
Ensuring Success	• Agreement by Grounds Maintenance Officers to this management technique • Water consumption and associated costs continue to increase
Measuring Success	• Monitoring of water consumption at both sites after 3 months • Annual update of carbon emissions baseline
Timing	○ start date: 01/03/2010 ○ completion date: 01/04/2010
Notes	

Appendix C: Carbon Investment Fund.

It is recommended that a rolling loan / small grant scheme (similar to the Central Energy Efficiency Fund which is currently used for certain energy efficiency projects) should be introduced as a means of financing carbon reduction projects. This type of fund provides internal loans to finance carbon saving projects within the Council's estate. Financial savings that are made are then returned to the fund, thus making it self-sustaining and driving performance efficiencies throughout the organisation. To enable the fund to operate effectively, savings will be measured and projects with a short (3-5 years) payback will be funded.

Initially the fund could be financed through individual budget holders paying a small fee on air travel costs to offset their emissions (say 5 -10 % of ticket price). Any offsetting fees will normally be paid to individual airlines or to external off setting companies, instead this fee could be paid directly to the Council and be used to implement carbon reducing projects thus reducing the Council's carbon emissions and energy costs.

The Council would effectively not see any reduction in utility bills over the period of the fund, since the savings from reduced energy consumption would be ring-fenced and retained within the revolving fund. Nevertheless, at the end, the organisation should benefit in three senses:

- Reduced energy bills (and therefore a reduction in energy/fuel expenditure);
- An overall reduction in the Council's carbon emissions;
- In retaining the residual value of the revolving fund at the end of the plan;
- In being able to claim a wide range of stakeholder benefits by demonstrating the achievement of emissions reduction, for example under the Carbon Reduction Commitment, Carbon Trust Standard and Climate Change Declaration.

Figure 5 below illustrates the expenditure, savings and cash flow of an example spend to save scheme, modelled on real energy saving opportunities and real costs, identified in a university during a pilot phase of the carbon management programme. The model shows an initial one-off injection of £75k into the fund at the start of year 1; after year 2 the fund balance remains positive, and supports the annual expenditure of around £100k on energy saving projects.

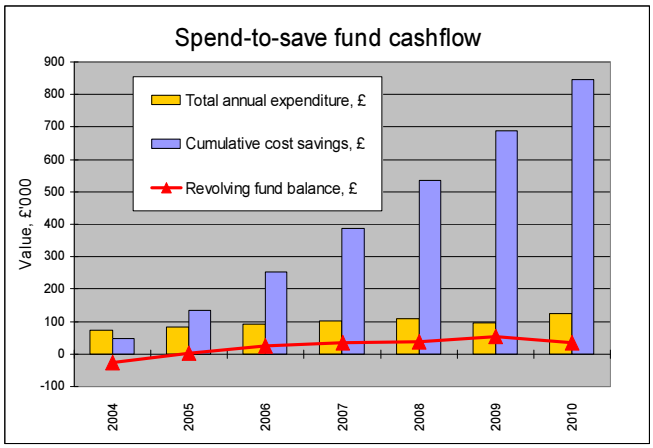

Figure 7: Example spend to save scheme showing expected expenditure, savings and cash flow.

Appendix D: Future Project Ideas

The projects identified in Appendix D are projects that have been suggested by the Carbon Management Project Team however have not yet been included in the Carbon Management Plan due to a lack of accurate data and/or resources being available at the time of writing. It is hoped that the projects listed will be incorporated in to future versions of the Carbon Management Plan and will only then count towards our reduction target.

- **Lighting Tender and Programme of Works:** a tender is being developed for a rolling programme of best practice lighting installation and refurbishment with the necessary work funded through a combination of CEEF and Capital monies;

- **Loft and Cavity Wall Insulation Programme of Works:** a basic loft and cavity wall insulation rolling programme will be implemented in Council owned public buildings throughout 2010, with the necessary work funded through CEEF;

- **Wash Room Best Practice Specification:** develop and implement a best practice specification to be used for any washroom upgrades or refurbishments. This will ensure the most efficient equipment is used and water pressures are correct.

- **Develop and Implement a Furniture Recycling Policy:** develop a Council Furniture Recycling Policy establishing a mechanism for effective and responsible disposal of excess furniture from the council. This will be carried out in conjunction with an ICT equipment audit in order to identify energy intensive equipment as well as identifying redundant equipment.

  At present excess furniture is kept in storage and recycled within the council as appropriate. This system is effective and there is limited furniture in these stores but this situation will change with forthcoming building closures.

- **Install Active Directory software to PCs:** This will allow PCs to be remotely monitored and will allow default printer settings (black and white/double sided) to be set to all corporate PCs. A test phase is to be conducted before March 2010 and roll out will be completed by April 2010.

- **Co-mingled waste collection:** development of Materials Recycling Facility and move to co-mingled collections for recycling will allow collection of additional materials form areas with on-street paper bins and potential to add further waste streams;

- **Ground source heat pump under roads:** examples of ground source heat pumps installed under new roads have been demonstrated in other EU countries. This would be an innovative project for Aberdeen which will contribute to the Council's Decentralised Energy Programme;

- **Schools Energy Champion:** introduce an Officer post specifically targeted at reducing energy, water, transport and waste in Schools as our schools estate accounts for 18% of our baseline emissions;

- **Private Household Renovation:** planners to only allow extensions if further work is done on the building to bring it up to current energy standards i.e. insulation levels.

Appendix E: Emission Factors and Data Sources

Emission Type	Emission Factor	CO2 Units	Source
Waste: Black stream domestic landfill	447	Kg CO2e/tonne	Local Authority Carbon Management Programme Briefing note: Calculating Greenhouse Gas emissions from Waste (January 2005) Version 1. Available upon request from Project Manager.
Waste: Black stream domestic recycling	0	Kg CO2e/tonne	Under the Carbon Management Programme any materials recycled are assumed to have zero carbon emissions.
Water consumed (m3)	0.404	Kg CO2/m3	http://www.bre.co.uk/pdf/waternews4.pdf
Fleet: Petrol	2.32	litres	DEFRA 2008 Guidelines Available upon request from Project Manager.
Fleet: Diesel	2.63	litres	DEFRA 2008 Guidelines Available upon request from Project Manager.
Business Travel: Train	0.06	passenger km	DEFRA 2008 Guidelines Available upon request from Project Manager.
Business Travel: Bus	0.11	passenger km	
Business Travel: Air - long haul international	0.12	passenger km	
Business Travel: Air –short haul international	0.11	passenger km	
Business Travel: Air - domestic	0.19	passenger km	
Buildings: Electricity (grid)	0.537	kg CO_2/kWh gross	DEFRA 2008 Guidelines Available upon request from Project Manager.
Buildings: Electricity CHP	0.295	kg CO_2/kWh gross	DEFRA 2008 Guidelines Available upon request from Project Manager.
Buildings: Heat CHP	0.19	kg CO_2/kWh gross	DEFRA 2005 guidelines Available upon request from Project Manager.
Buildings: Burning Oil	0.245	kg CO_2/kWh gross	DEFRA 2008 Guidelines Available upon request from Project Manager.
Buildings: Gas	0.185	kg CO_2/kWh gross	DEFRA 2008 Guidelines Available upon request from Project Manager.